(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



48 OCT 2004

(43) International Publication Date 13 November 2003 (13.11.2003)

PCT

(10) International Publication Number WO 03/092554 A1

(51) International Patent Classification7:

(21) International Application Number:

101

nber: PCT/US03/14160

(22) International Filing Date:

5 May 2003 (05.05.2003)

(25) Filing Language:

English

A61F 2/24

(26) Publication Language:

English

(30) Priority Data: 60/377,721

3 May 2002 (03.05.2002) US

(71) Applicant (for all designated States except US): THE GENERAL HOSPITAL CORPORATION [—/US]; 55 Fruit Street, Boston, MA 02114 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): WHITE, Jennifer, K. [US/US]; 102 Naples Road, Brookline, MA 02446 (US).

(74) Agent: BERNSTEIN, Jason, A.; Powell, Goldstein, Frazer & Murphy LLP, 16th Floor, 191 Peachtree Street, Atlanta, GA 30303-1736 (US). (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INVOLUTED ENDOVASCULAR VALVE AND METHOD OF CONSTRUCTION



(57) Abstract: A prosthetic tri-leaflet valve formed by involuting a portion of a tubular structure inside itself. The valve can be made by a method comprising providing a tubular segment in which three equidistant longitudinal incisions are made in one end of the tube creating three flaps which are involuted, i.e., folded, in toward the inside of the tube and the edges of the flaps secured to the inner wall of the tube to form leaflets. The tube can be formed of a single sheet of synthetic, organic or biological material and can be solid, woven, braided or the like. A braided configuration permits the valve to be annularly compressed and delivered to the site using a minimally invasive delivery mechanism, then expanded at the implantation site.

